Chapter 6.6 Virginia Coastal Zone Management Program

Virginia's coastal zone encompasses all of Virginia's Atlantic coast watershed as well as parts of the Chesapeake Bay and Albemarle/Pamlico Estuary watersheds. This coastal zone area, also known as Tidewater Virginia, includes 29 counties, 15 cities, 42 towns, as well as all waters within and out to the three-mile Territorial Sea boundary.

The Virginia Coastal Zone Management Program (Virginia CZM Program) was established in 1986 to protect and enhance Virginia's coastal resources. The Virginia CZM Program is a network of state agencies and Tidewater local governments and the CZM laws and policies they implement. Through this network, the Virginia CZM Program manages sand dunes, wetlands, underwater lands, fisheries, point and nonpoint source air and water pollution, shoreline sanitation and a variety of other areas of particular concern such as coastal wildlife habitats and public access, waterfront redevelopment and underwater historic sites. See http://www.deq.virginia.gov/coastal/ for more details about the laws and policies that define Virginia's CZM Program.

Executive Order Number Twenty-Three signed by Governor Mark Warner in June 2002, continuing the Virginia CZM Program, directs all state agencies "to carry out their legally established duties consistent with the Coastal Program in a manner that promotes coordination among all government agencies." It is through this coordination that the Virginia CZM has been able to achieve great strides in achieving its goals and objectives." See http://www.deq.virginia.gov/coastal/exorder.html for a list of the goals and what the Program has accomplished toward reaching these goals.

Core regulatory agencies in the Virginia CZM network include the Marine Resources Commission (VMRC), the Department of Environmental Quality (DEQ), the Department of Game and Inland Fisheries (DGIF), the Department of Conservation and Recreation (DCR), the Virginia Department of Health (VDH), and the Chesapeake Bay Local Assistance Department (CBLAD). Other agencies participating in the Program include the Department of Historic Resources (DHR), Department of Forestry (DOF), Department of Agriculture and Consumer Services, the Virginia Institute of Marine Science (VIMS), the Virginia Economic Development Partnership (EDP) and the Virginia Department of Transportation (VDOT). DEQ serves as the lead agency for Virginia's networked CZM Program, and helps agencies and localities to develop and implement coordinated coastal policies.

By virtue of having a federally approved CZM Program, Virginia also has the authority to require that federal actions within the coastal zone be consistent with Virginia's CZM Program. Environmental impact review staff at DEQ review federal actions in the coastal zone for consistency with Virginia's CZM Program laws and policies.

Coastal Zone Management Act Funding Received by Virginia

In addition to providing a forum for development and coordination of cross-cutting coastal issues, the Virginia Coastal Program provides grant assistance to state agencies and local governments. Having a federally approved coastal zone management program qualifies Virginia to receive about $3 million per year in federal funds under a formula allocation based on miles of shoreline and coastal zone population. The Office of Ocean and Coastal Resource Management at the National Oceanic and Atmospheric Administration (NOAA) allocates these funds under the Coastal Zone Management Act (CZMA). These grant funds are equally matched by Virginia's state agencies and local governments.

Since 1986, the Commonwealth has received over *$40* million in federal funds, matched by over *$35* million in state and local matching funds. These funds are used to implement the Virginia CZM Program and to carry out a broad scope of state and local projects in the areas of coastal technical assistance, enforcement, environmental management, habitat restoration and monitoring, land acquisition, local government planning and comprehensive plans, public access planning and construction, public education, shoreline management, special area management planning, wetlands surveys/mapping/planning and policy, and water quality monitoring/protection and improvements. For grant project lists and descriptions back to 1992 visit http://www.deq.virginia.gov/coastal/projects.html .

Virginia Coastal Program Initiatives Benefiting Water Quality

Several initiatives exemplify the Virginia Coastal Program's unique opportunity to fund and support projects that protect the Commonwealth's coastal resources, while encouraging intergovernmental coordination and partnerships with a broad constituency. The initiatives highlighted below are a few of the Program's projects that address water quality issues and focus on monitoring and restoration of living resources which improve water quality in Virginia's coastal waters. They include the Program's newest public-private partnership initiative – the Virginia Seaside Heritage Program, development of a green and blue infrastructure mapping system – Coastal GEMS, and coordination of improvements to Virginia's shoreline management guidance, policy analysis, data and research.

Virginia Seaside Heritage Program

Dependent on good water quality, submerged aquatic vegetation (SAV) is an important indicator of the health of our coastal waters. SAV also provides habitat and reduces wave energy on adjacent shorelines. Seagrass restoration, as well as oyster restoration, is a focus of a Virginia CZM Program multi-year initiative to help restore the ecology and economy of Virginia's Atlantic barrier island lagoon system – the *Virginia Seaside Heritage Program* (VSHP). The VSHP has tremendous potential to demonstrate habitat restoration techniques and appropriate management of economic development within a rare and fragile ecosystem. Initially designed as a three-year $1.5 million project, the VSHP will be funded through 2006 to build upon the successes already achieved by the VSHP partners.

Eelgrass recovery rates on the seaside of Virginia's Eastern Shore are very promising given the near total absence of eelgrass since the 1930's. Recent aerial photography shows a wonderful natural spread of grasses from restoration sites. The current method of large scale-restoration involves broadcasting seeds by hand instead of transplanting whole plants. In the fall of 2003, over 1.7 million seeds were dispersed in 35 half-acre plots in Cobb Bay and Spider Crab Bay by the Virginia Institute of Marine Science (VIMS). In the spring of 2004, another 6.87 million seeds were dispersed in 35 acres in plots ranging in size from 1 to 5 acres in Spider Crab Bay. *VIMS will continue to monitor the rate of recovery of these beds and ambient water quality as the beds spread.* VIMS, the Army Corps of Engineers, the Virginia Marine Resources Commission (VMRC), and the Nature Conservancy (TNC) are also currently negotiating sites for eelgrass restoration in Hog Island Bay where public grounds are limited.

In a complimentary project, VMRC staff is coordinating with TNC to raise bay scallops in eelgrass restoration areas in South Bay. It is hoped that these scallops will spawn and produce offspring. The scallops, which come from remnant stocks in Chincoteague Bay, are genetically distinct from the more northern strains of bay scallops found from Massachusetts to New York and from a more southern strain found in North Carolina. These genetic differences may prove to be very helpful in tracking the progress of scallop restoration on Virginia's Eastern Shore.

Oyster reef restoration efforts on the seaside continue. VMRC constructed approximately three acres of reef in 2003 and 2004. This includes two acres around Gull Marsh and Wreck Island and one acre in the Gargathy Bay/ Cockle Creek area. Over 65,350 bushels of shell, harvested from nearby fossil shell deposits, were used to build the reefs. In 2002, spatset (the settlement of juvenile oysters) was fairly high in the Gull Marsh area (548 spat/meter), but poor in Gargathy Bay (12 spat/meter). Spatset was more promising in 2003, averaging 1000 spat/meter in Wreck Island and Cockle Creek. Future restoration sites include Cobb Island and the backside of Parramore Island.

For more information about the Virginia Seaside Heritage Program, please contact Laura McKay at (804) 698-4323; Laura.McKay@deq.virginia.gov. Visit the Seaside Heritage Program Web site at http://www.deq.virginia.gov/coastal/vshp/homepage.html for more details on the projects mentioned here and other efforts under the VSHP to improve barrier island avian habitat, increase ecotourism opportunities, map and remove Phragmites, and educate the public about the significant coastal resources of Virginia's eastern shore.

Shoreline Management

Waterfront development, often for retirement or summer homes, is an ever more common sight along the creeks and rivers of Virginia's coastal zone. Waterfront property is expensive, so one of the first "improvements" new property-owners typically consider is stabilizing their shoreline in order to prevent erosion and protect their investment.

Although a number of options are available for managing shoreline erosion, many landowners choose to harden their shoreline with either a riprap revetment (rock) or a wood or vinyl bulkhead. Building these structures along the shoreline may require removing vegetation in order to gain access for construction activities. Depending on the height and condition of the shoreline bank, some property owners also grade their property next to the shoreline to reduce the slope to the water and prevent bank erosion.

Unfortunately, some shoreline stabilization practices can have detrimental effects on coastal resources. Impacts to important habitats and to water quality can occur because of the loss of trees and shrubs, wetlands, beaches, banks and underwater grass beds. Some of these losses occur immediately because of shoreline structure construction, access to shoreline areas for machinery, or grading. Others are more gradual and may result from scouring and sediment re-suspension from reflected wave energy or the inability of fringe marshes and beaches to migrate landward as sea level rises. Shoreline stabilization can also affect the gradual movement of sediment along the shore and cause increased erosion on nearby properties. Removal of shoreline vegetation can cause shallow water temperatures to rise. This can adversely affect fish. Loss of trees and shrubs also reduces food and cover for birds and other wildlife.

Virginia has a number of laws and programs related to shoreline management. Key legislation includes the Tidal Wetlands Act, the Coastal Primary Sand Dunes and Beaches Act, and the Chesapeake Bay Preservation Act. Depending on the specifics of the proposed project, as many as a dozen agencies at the state, federal and local levels may be involved in the review of a single shoreline management project. Part of the reason for this complex review process is the wide range of agency objectives for project review and management. In some cases the objectives may conflict with one another or jurisdictions may overlap. In other cases there are gaps in the management process where coastal resource management objectives are not adequately considered.

In an effort to improve agency coordination on shoreline management decisions, the network agencies of the Virginia Coastal Program have undertaken a number of initiatives. In general, these initiatives have taken the form of improved guidance, policy analysis, or new data and research.

A common pitfall of coastal resource management is the lack of adequate guidance for decision makers and property owners. In an effort to improve the level of guidance on shoreline management issues and programs, Coastal Program agencies have completed, or are working on, several important documents.

Joint Permit Application Revisions: The Joint Permit Application (JPA) used by property owners to apply for any permits necessary for shoreline management projects has been revised and improved by the Virginia Marine Resources Commission, Department of Environmental Quality, Department of Conservation and Recreation's Division of Chesapeake Bay Local Assistance and the U.S. Army Corps of Engineers. The application is more user-friendly and incorporates applicable provisions of the Chesapeake Bay Preservation Act and the Nontidal Wetlands Act. VMRC has also developed is also in the process of drafting a "short version" of the JPA specifically for shoreline stabilization projects. In addition, state agencies are working closely with the Corps to develop a web-based system for JPAs. The eApplication will provide regulatory and policy information to prospective applicants, electronic submission of application data and status reports available for the applicant.

Bay Act Buffer Manual, Shoreline WQIA and Shoreland Planning Initiative: Many localities do not have the capability to assess the impacts of waterfront development on the adjacent aquatic resources. The Department of Conservation and Recreation's Division of Chesapeake Bay Local Assistance, with assistance from the Virginia CZM Program, has developed the Riparian Buffers Modification and Mitigation Guidance Manual. The manual provides guidance for meeting Bay Act requirements for localities in reviewing proposed shoreline erosion control projects. A corresponding model Water Quality Impact Assessment (WQIA) was also developed to help localities better evaluate the water quality impacts of proposed shoreline management projects. The Virginia CZM Program also supported a project to provide localities with guidance on the impacts of shoreland development to aquatic habitats and a GIS-based tool to evaluate the potential impacts from development along the shoreline. A Better Land Use Planning in Coastal Virginia guide and brochure outlines the land use pressures on Virginia's coastal

resources and provides case studies, tools and recommendations to local governments to improve site planning and reduce cumulative and secondary impacts. Better Land Use Planning in Coastal Virginia materials can be found on the web at: www.cblad.virginia.gov/Shorelands/cbladShorelandshome.htm.

Shoreline Management Consensus Document: As a result of a Virginia CZM Program grant VIMS developed an *Interagency Shoreline Management Consensus Document* early in 2005 which provides guidance for setting priorities for shoreline management in Virginia. The guidance matches the most appropriate shoreline erosion control practice with a set of commonly seen shoreline conditions. The priorities, developed through collaboration with various state agencies, call for the least invasive approach. The four general categories of approach, from least to most impact, are 1) no action, 2) non-structural techniques, 3) combined non-structural and structural techniques, and 4) structural techniques. The priorities set in this document will be reflected in the permit review process. The Coastal Program plans on developing a publication for distribution to local officials that clearly depicts this guidance. The publication will also be available over the Internet and a brochure will be developed for distribution to property owners. The Virginia CZM Program has supported efforts to evaluate the shoreline management process and to provide recommendations to improve that process where necessary.

Shoreline Management Framework: In the summer of 2003 the Virginia CZM Program supported an internship project to research shoreline management. The result of this research was a report titled *An Analysis of the Current Shoreline Management Framework in Virginia: Focus on the Need for Improved Agency Coordination*. The report includes information on the process and multiple objectives of the current framework, gathered through research and interviews. The report concluded that enhancements to coordination among state agencies as well as improvements in state and local government relations would improve the shoreline management process. Among the report's recommendations are on-site consultations with property owners and increased shoreline management education. Recommendations from the report were presented at a 2003 Coastal Partners Workshop and are available on the Web at http://www.deq.virginia.gov/coastal/publicat.html.

Supratidal Beaches Project: A second Virginia CZM Program internship in the summer of 2004 focused on the issue of "supratidal beaches" that are not regulated by either the Tidal Wetlands Act or the Coastal Primary Sand Dunes and Beaches Act. These beaches lie above mean high water and are found along the tributaries of the Chesapeake Bay. A report was developed through the internship that evaluates the need for expanded regulatory authority over these beaches, especially to better manage the impacts of shoreline erosion control structures. The report provides information on the current beach management framework, on the shoreline erosion control and habitat values of beaches, and on the potential impact of expanded regulatory authority on local shoreline management programs.

Good resource management decisions rely on good scientific understanding and data. The Coastal Program is funding three projects at VIMS to improve the data available for shoreline management decisions. VIMS has also undertaken research specific to shoreline management that should help with future management decisions.

Shoreline Evolution Maps: Shoreline management must have a historical basis for understanding the potential impacts of various strategies including shore hardening and beach nourishment. For localities with higher energy shorelines, more detailed information is useful on how shoreline features, including adjacent land use, nearshore sand bars and underwater grass beds, have evolved over time. VIMS has developed preparing digital and hardcopy datasets for these localities, based on a series of orthorectified aerial photography taken between 1937 and 2002. This data will eventually be available to everyone over the Internet.

Supratidal Beaches Inventory: This project complements the policy analysis project described above by providing data on the location of supratidal beaches (above mean high water). Aerial video and 2002 Virginia Base mapping Program imagery was used to determine the location and extent of beaches in 19 localities not covered by the Coastal Primary Sand Dunes and Beaches Act. Taken together with the analysis of beach management policies, this data will be used to evaluate a VIMS/Coastal Policy Team recommendation for expanded protection of beaches.

Fringe Marsh Values: VIMS has conducted research on the habitat value of fringe marshes as compared to that of riprap revetments (large boulders placed on the shoreline). In general, the research concluded

that the fringe marsh areas were much more important habitat because they contained more fish, a wider variety of fish, and some smaller fish (indicating importance as a nursery area). This information should be taken into account by local wetlands boards as they consider shoreline management proposals.

The Coastal Program will continue its efforts to improve coordination among agencies and local governments charged with shoreline erosion control management decisions. Through these actions, as well as planned outreach efforts for the general public, waterfront land owners can continue to protect their property from erosion, but also minimize their costs and maximize water quality, wildlife habitat and natural beauty.

For more information about the Coastal Program's shoreline management coordination activities, please contact Shep Moon at (804) 698-4527 or hsmoon@deq.virginia.gov.

Coastal GEMS - Creating a Vision for Virginia's Coastal Zone

The Virginia CZM Program is currently engaged in a large-scale, multi-partner effort to create a "vision" or map of the ecologically and economically significant aquatic (marine and freshwater) and land-based resources found within Virginia's Coastal Zone. Spatial and non-spatial data for aquatic and terrestrial ecosystems are becoming more and more accessible through the Internet however these data are often scattered throughout the Web and not organized into one central application. The availability of adequate coastal resource data is essential to improving decision-making at the local state and local level. By mapping the best remaining blue and green infrastructure in coastal Virginia, the Virginia CZM Program will provide an easy to access visual reference for localities of where vital environmental resources cross, touch, or are adjacent to their boundaries.

The Virginia CZM Program is working closely with the Center for Environmental Studies at Virginia Commonwealth University and the Division of Natural Heritages at DCR to design a portal of Virginia's coastal blue and green infrastructure. This portal, "Coastal GEMS" (Geospatial Environmental Mapping System), will integrate and provide access to a wide range of coastal resource data, fact sheets, relevant projects, regulatory information, and important Web links. When completed in the fall of 2006, the *GEMS* portal will be a robust, one-stop, data gateway for federal, state, and local government decision makers. It will facilitate data sharing among governments, NGOs, and the general public and will promote the development of standards for environmental data management within the region. *Coastal GEMS* will allow its users to explore and describe patterns and relationships among water and land ecosystem elements across broad (i.e., landscape-level) spatial scales.

The data which are being incorporated into Coastal GEMS have often been the result of collaborative discussions and data-sharing efforts between many state and local agencies with a vested interest in Virginia's Coastal Zone.

The Virginia Coastal Zone Management Program (VA-CZM) has funded several projects which have contributed to the majority of data layers within the first version of Coastal GEMS. However, for Coastal GEMS to be the most useful and comprehensive, we will continue to explore opportunities to include additional data layers from our partner agencies as they are compiled or developed.

The following is a brief description of the projects and data layers which serve as the foundation for the first version of Coastal GEMS, followed by a conceptual diagram showing our "vision" of how Coastal GEMS can help everyone involved in Virginia's Coastal Zone.

"Blue" Infrastructure Data Layer Development:

- The majority of "blue" (or aquatic) data layers to be included in the first version of Coastal GEMS are primarily the result of three VA-CZM Grants (listed below). However, additional datasets will be incorporated through data sharing with networked partners or ongoing/future data development initiatives.

1) Blue Infrastructure Project – Grant to VIMS

- The objective of this project was to first develop criteria for what constitutes important freshwater and marine aquatic resources and start the development of a comprehensive coastal zone-wide, blue infrastructure map. To develop those criteria, a working group was

assembled which included representatives from Virginia Institute of Marine Science (VIMS), Virginia Marine Resources Commission (VMRC), Department of Game and Inland Fisheries (DGIF), and Department of Conservation and Recreation (DCR). By using those criteria, collecting existing data, and creating new data, a coastal zone-wide map was produced that begins to show a geographic representation of Virginia's blue infrastructure. Currently, the geospatial data (and associated metadata) for this project can be found at: http://ccrm.vims.edu/blueinfrastructure/bi_intro.html.

2) Conversion of VMRC Fisheries Data – Grant to VIMS

- This project focused on the acquisition and conversion of data layers pertaining to Virginia Marine Resources Commission's (VMRC) Fisheries Management Areas. Originally identified by NOAA in their Marine Managed Areas (MMA) inventory, these management areas became the foundation for discussions in the Blue Infrastructure Project, but were subsequently not included in the final Blue Infrastructure product due to technical limitations of the data. For this project, VIMS-CCRM coordinated with the survey division of VMRC to transfer AutoCadd data into GIS as well as interpret existing legislation to create the digital data that is now an integral part of Blue Infrastructure.

3) INteractive STream Assessment Resource (INSTAR) – Grant to VCU

- INSTAR is an interactive online tool developed by Virginia Commonwealth University's (VCU) Center for Environmental Studies. INSTAR provides access to an extensive dataset for stream reaches throughout Virginia's coastal zone, including instream habitat and stream geomorphology. INSTAR has the capability to model streams in the coastal zone and assign 'stream health' values. This assessment tools will benefit a wide range of stakeholders, for example, agencies/organizations implementing stream restoration projects, and regional/local governments responsible for developing watershed management plans.

Current "Blue" Infrastructure Data Layers for Coastal GEMS:

- Anadromous Fish Streams (DGIF)
- Clam Aquaculture Permitted Sites (VMRC)
- Clam Aquaculture Suitability Model Layer (VIMS)
- Oyster Aquaculture Suitability Model Layer (VIMS)
- Baylor Grounds (VMRC)
- Black Drum Management Areas (VMRC)
- Blue Crab Sanctuary (VMRC)
- Clam Sanctuaries - permanent (VMRC)
- Clam Sanctuaries – seasonal (VMRC)
- Hampton Roads Blue Crab Sanctuaries (VMRC)
- Hampton Flats Hard Clam Harvest Area (VMRC)
- INSTAR Data Layers
  - Streams with High VSA Scores (High Quality Streams)
  - Streams which are Candidate Restoration Sites
- James River Oyster Seed Beds (VMRC)
- Oyster Reefs – 3 Dimensional Restoration (VMRC)
- Oyster Management Areas Including:
- Public Beaches (VIMS)
- Primary and Secondary Dunes (VIMS)
- Private Oyster Leases (VMRC)
- Red Drum Sanctuaries (VMRC)
- SAV – 2004 Virginia SAV Coverage (VIMS)
- SAV – Seaside Restoration Efforts
- Scenic Rivers (DGIF)
- Shellfish Management Areas (VMRC)
- Stream Conservation Units – DCR (need updated data)
- Striped Bass Sanctuaries (VMRC)
- Virginia Public and Unassigned Grounds (VMRC):
- Waters with Threatened and Endangered Species(DGIF)
- Water Trails (ANPDC, Virginia Coastal Program)
  - Seaside Water Trail

"Green" Infrastructure Data Development Projects:

- The majority of "green" (or land-based) data layers to be included in the first version of Coastal GEMS are primarily the result of VA-CZM funding to DCR Natural Heritage Division for the Coastal Zone Natural Landscape Assessment (VANLA) and Green Infrastructure Models (described below). However, additional datasets have been or will be incorporated through data sharing with networked partners or ongoing/future data development projects.

1) Green Infrastructure GIS – Grant to DCR-NH

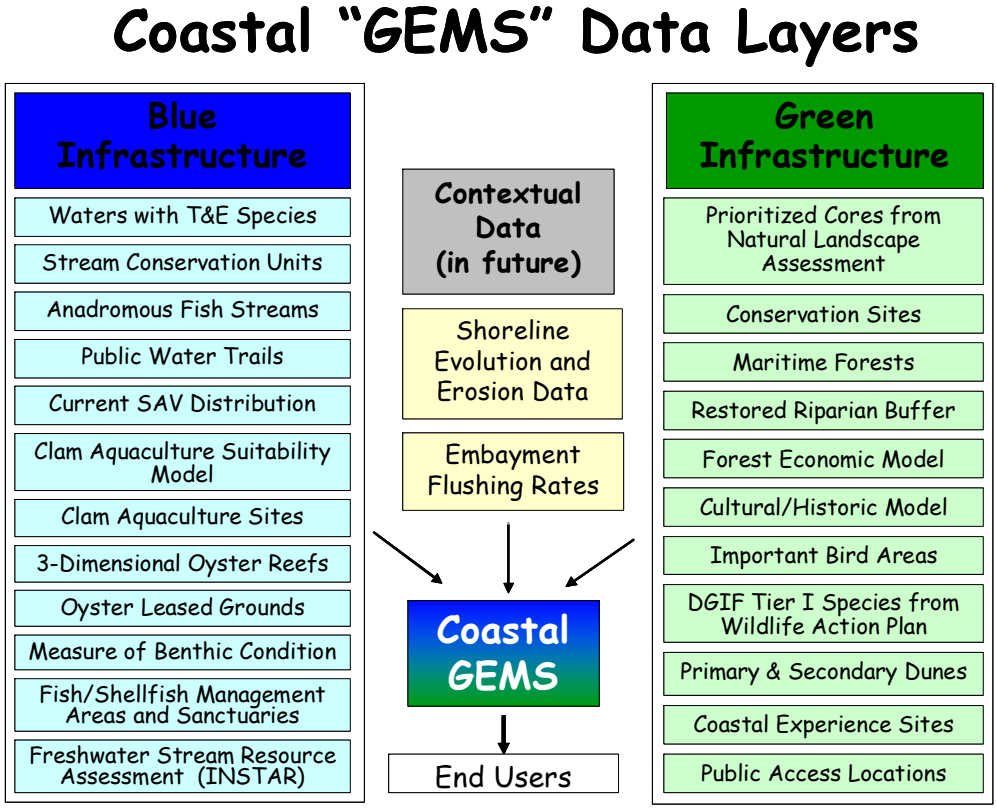
In the summer of 2002, the Virginia Coastal Program contracted with DCR-NH to start to create a "green infrastructure" map of the coastal zone by depicting conservation "hubs and corridors" based on land cover data. This analysis was called the Virginia Natural Landscape Assessment (VANLA). The VANLA is the main ecological component of DCR's Virginia Conservation Lands Needs Assessment (VCLNA) which is an integrated assemblage of datasets and prioritization guidelines and serves as a flexible tool that can help focus the needs and strategies of different conservation interests.

Since that time, DCR-NH has made significant revisions of the pilot VANLA using newer land use imagery (RESAC land cover developed by the University of Maryland for the entire state of Virginia) to be methodologically consistent with the development of a statewide product. Improvements include handling wetlands more consistently, include natural land fragments smaller than cores but important to localities for open space and recreation, and incorporating additional datasets not available at the time of the pilot VANLA. Prioritized data layers from the VANLA will be displayed with Coastal GEMS and in the future, this data will be used to create a comprehensive Green Infrastructure Layer for the Coastal Zone.

As there are other components (or data) to consider when developing a comprehensive Green Infrastructure, the Virginia Coastal Program has also contracted with DCR-NH to identify, assemble or create additional geospatial datasets related to Green Infrastructure. Towards this end, DCR will be examining how GIS models which have been developed through the Chesapeake Bay Resource Lands Assessment (RLA) Program can be modified to meets Virginia's needs. The models address water quality protection, forest economics, prime farmland, cultural values, recreational opportunties and vulnerability. In addition, the identification of other important geospatial datasets and analyses to be incorporated into the Coastal Zone Green Infrastructure will be guided by a Green Infrastructure Advisory Workgroup which currently includes representatives from Virginia's state agencies, regional planning district commissions, localities, and non-profit organizations.

Current "Green" Infrastructure Data Layers for Coastal GEMS:

- Consensus Green Infrastructure Layer (DCR-NH)(in development)
- Conservation Lands Data (compiled by DCR-NH)
- Conservation Corridors (DCR-NH)
- Conservation Sites (DCR-NH)
- Forest Cores and Fragments (VANLA) (DCR-NH)
    - Cores Prioritized by Habitat Parameters (VANLA)
- Green Infrastructure Models (DCR-NH)
    - Cultural Resources Model (completed)
    - Vulnerability Model (underway)
    - Forest Economics Model (underway)
    - Water Quality Model (in development)
    - Agricultural Model (in development)
    - Recreational Model (in development)
- Important Bird Areas (W&M, Center for Conservation Biology)
- Maritime Forest Project (VIMS, DOF)
- Primary and Secondary Dunes (VIMS)
- Restored Riparian Buffer (DOF)
- Supratidal Beaches (VIMS)
- Tier 1 Species from Wildlife Action Plan (DGIF)
- Threatened and Endangered Species (DGIF)



Virginia Coastal Nonpoint Source Pollution Program

In 2001 Virginia became the sixth state to receive full approval of its *Coastal Nonpoint Pollution Control Program* from NOAA and EPA. Development of the program was initiated in the fall of 1992 in response to Section 6217 of the Coastal Zone Management Act Reauthorization Amendments of 1990. Section 6217 of the Act requires that state's with an approved coastal zone management program, develop a Coastal Nonpoint Source Pollution Control Program. The statute is meant to restore and protect coastal water quality through the application of economically achievable "best management practices" implemented through enforceable state policies and mechanisms. The federal government defines state enforceable policies and mechanisms as state and local regulatory controls and/or non-regulatory incentive programs combined with state enforcement authority.

There are 56 management measures contained in the *Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters*, a comprehensive technical document issued by EPA on methods to abate and control nonpoint pollution in coastal areas. The chapters include management measures in the following areas: agriculture, forestry, urban areas, marinas and recreational boating, and hydromodification (channelization and channel modification, dams, and streambank and shoreline erosion). This document is available on EPA's Web site at http://www.epa.gov/owow/nps/MMGI/.

In order to gain approval of its Coastal Nonpoint Pollution Control Program, Virginia was required to show that:

1) State programs include appropriate management measures (defined in the above guidance) to control NPS pollution;
2) The state has a means of implementing the management measures, and;
3) The state has sufficient statutory authority and enforcement capabilities to ensure implementation of management measures to reduce NPS pollution impacts on coastal resources.

With approval of its Coastal Nonpoint Pollution Control Program, Virginia remains eligible for full funding under the Coastal Zone Management Act and Section 319 of the Clean Water Act.

Following are some of the projects that contributed to the approval of Virginia's Program:

- A series of workshops on the proper use of irrigation systems and development of informational material on irrigation best management practices;
- Development of a web-enabled database for use by local government to track erosion & sediment control activities; development of a model local stormwater ordinance; and an economic evaluation of incorporating BMPs into site design;
- Development of shorelands planning protocol for use by local governments to enhance planning capabilities for areas adjacent to shorelands;
- A statistical analysis of the impact of channelization activities and dams in Tidewater Virginia on instream & riparian habitat;
- A plasticulture guidebook for local government and farmers recommending practices to protect water quality for operations using plastic mulch;
- Development of the Virginia Clean Marina Program to provide technical assistance to marinas and recreational boaters – more details below.

Virginia is addressing the Marina/Boatyard, Hydromodification, Urban Source and Wetland categories through such projects as: the Virginia Clean Marina Program; completion of coastal regional curves for stream restoration designs; technical assistance to local governments for innovative designs, use of new planning tools (INSTAR, Coastal GEMS), development and delivery of a Nonpoint Education for Municipal Officials (NEMO) program, support and expansion of the Chesapeake Club Social Marketing Campaign (http://www.chesapeakeclub.org/); support for the Joint MD/VA Living Shoreline Summit and development of a Shellfish TMDL Implementation Plan.

For more details on projects and products produced through the Virginia Coastal Nonpoint Pollution Program, visit http://www.dcr.state.va.us/sw/czreauth.htm.

Virginia Clean Marina Program

There are approximately 1000 marinas and 250,000 boaters sharing the natural and economic benefits of Virginia's waterways. With each new boater and marina operator the potential impact to our waterways from nonpoint source pollution increases. Studies have shown, however, that an increasing number of recreational boaters support efforts to prevent and reduce pollutants from entering Virginia's waterways, and that higher occupancy rates exist at marina's where BMPs have been put into place.

In January 2001, marina operators, marine industry representatives and state officials launched the Virginia Clean Marina Program. The Virginia CZM helped spearhead development of the Clean Marina Program and has provided funding to the program since its inception. This voluntary initiative is designed to educate and give technical support and special recognition to marinas that implement Best Management Practices (BMP's) that go above and beyond regulatory requirements, minimizing potentially negative impacts on water quality and coastal resources. The program is a joint agency initiative between the Virginia CZM Program, Department of Environmental Quality, Department of Conservation and Recreation and Virginia Sea Grant at the Virginia Institute of Marine Science.

A Marina Technical and Environmental Advisory Committee (MTEAC), made up of representatives from Virginia's coastal network of state agencies, the marine trade industry, and the recreational boating and environmental communities, directed development of the Virginia Clean Marina Program. This committee spent several months refining a Virginia Clean Marina Guidebook for use by marina operators and recreational boaters. The Guidebook provides information on implementing best management practices (BMPs) at marinas. It also provides summaries of the pertinent state and federal laws affecting marinas, as well as agency contacts for more information. Fact sheets provided in the guidebook can be copied and distributed to boaters. The guidebook is available on-line at http://www.vims.edu/adv/vamarina/. A Marina Technical Advisory Specialist, located in the Marina Technical Advisory Program at the Virginia Institute of Marine Science Sea Grant Office, is currently focusing on developing technical information on environmental and economic issues, and working with marinas who have pledged to achieve voluntary designation as a Virginia Clean Marina.

As of the end of 2005, 22 marinas have been awarded Virginia Clean Marina Designation. Thirty marinas have pledged to participate in the program and are working toward designation.

The Virginia Clean Marina Program released a Clean Boating Tip Sheet as a best practices reference for boaters. The Clean Marina Program has also published fact sheets on Clean Boating and Waste Containment outlining best practices for proper waste disposal and recycling. For copies of these publications visit the Virginia Clean Marina Web site.

For more information about Virginia's Coastal Nonpoint Pollution Control Program and other coastal nonpoint program initiatives, please contact Todd Janeski at (804) 371-8984 or e-mail: Todd.Janeski@dcr.virginia.gov. For more information on the Virginia Clean Marina Program, including Clean Marina Success Stories, visit the Virginia Clean Marina Web site at http://www.vims.edu/adv/vamarina/index.html.

Interested in learning more about the Virginia Coastal Zone Management Program, its projects and publications? Visit our Web site at http://www.deq.virginia.gov/coastal/.